

Neurotrauma Protocols: Do They Work?

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Guidelines for the Management of Severe Head Injury (1995; rev. 2000)

- Trauma Systems
- Integration of Brain-Specific Treatments
- Resuscitation of BP and O₂
- Nutritional Support
- Early Outcome Predictors

- Intracranial Pressure
 - monitoring
 - treatment
 - standard algorithm approach
- Cerebral Perfusion Pressure
- Hyperventilation
- Mannitol
- Barbiturates
- Glucocorticoids
- Anti-seizure prophylaxis

Guidelines for the Management of Severe Head Injury

- Major revision May 2007
- New Sections
 - DVT Prophylaxis
 - Prophylactic Hypothermia
 - Anesthetics, Analgesics, & Sedatives
 - Infection Prophylaxis
 - Brain Oxygen Monitoring & Thresholds
 - Hyperosmolar Therapy
- Level I, II, III Recommendations
 - (compared with Standard, Guideline, Option)
- Planned update every 5 years

Protocols = McDonald's?

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- Every patient is not the same!
- *BUT* - Consistency and Quality

Protocol implementation

- Colombia: Management of Severe Head Injury/ICP
- 23 with guidelines, 16 without
- Guidelines group: IVC and medical
- Guidelines mortality 30% vs 44%
- Good recovery 49% vs 25%

Protocol Implementation

- Sweden: Neurointensive Care
and New Protocol

Protocol Implementation

Protocol Implementation

- U. of Louisville; pre- and post- pathway, 1995
- Mortality: 39% vs 47%
- DNR/comfort care: 15% vs 26%
- Mortality, excluding comfort care: 34% vs 35%

Protocol Implementation

- Fairfax, VA
- Mortality decreased 4%
- ICU LOS down 1.8 days
- Total hospital LOS down 5.4 days
- GOS good increased 43.3% to 61.5%
- RLAH increased 43.9% to 56.6%

Protocol Implementation

- Mission Hospital (Orange County, CA)
- GCS >8 => OR 6.58 good outcome
- Post-protocol OR 9.13 good outcome

Protocol Implementation

Length of Stay

	Pre-pathway	Post-Pathway	P-value
LOS-mean	31	22.5	0.009
LOS-median	20	27	
ICU days-mean	21.2	16.8	0.007
ICU days-median	19	16	
Vent days-mean	14.4	11.5	0.026
Vent days-median	12	10	

Protocol Implementation Pneumonia

	Pre-pathway	Post-pathway	P-value
Pneumonia (%)	98	82	0.008
Day 0-3	44	35	
Day 4-7	47	35	
Day >7	70	42	

Protocols

Centers for Disease Control

- 1.4 million TBI/year in US
- 50,000 die
- 5.3 million live with TBI
- Direct cost \$66k

Protocols

Centers for Disease Control

	Med	Rehab	Societal	Implement	Total
Current	60.9k	4.6k	330.8k	0	396.3k
BTF	49.6k	2.8k	165.9k	2.6k	220.9k
Difference	11.3k	1.9k	164.9k	(2.6k)	175.5k

Improved Implementation

Neurocritical Care Society

Protocols: Do They Work?

Thank You!

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